Comment to a portion of Proposal 62, New Section 1515: Shut off of emergency egress lighting

This calls for egress lighting to be controlled by a listed emergency relay and occupancy sensor. Not all listings are created equal, and the listing for electrical equipment to be used for emergency systems is significantly more stringent than a listing for the same product for general use.

According to Michael Shulman, Principal Engineer – Lighting,
Underwriters Laboratories Inc.

Automatic load control relays (LCRs) are covered by UL 924 and there are many such products Listed. These devices are used to allow emergency lighting to be dimmed or turned off, but to be automatically energized (or brought up to the required illumination level, if dimmed) upon activation of an emergency signal (fire alarm or loss of normal power).

Occupancy sensors are currently only evaluated for fire/shock issues. This was just discussed at the NFPA 101 MEA TC ROP meeting (last week) and I will be working with the principal engineer for UL 773A (Nonindustrial photoelectric switches) to draft a proposal for testing / identifying sensors that are 'fail-safe' as required by NFPA 101. Such sensors would automatically default to the closed ("on") position in case of component failure or loss of power. There may be listed products on the market that currently perform in this manner but we (UL) don't have a specific program to identify them.

This is a significant issue. Listing of a relay includes investigation of the product for fire and electrical shock hazard. Products listed for emergency use are additionally evaluated for a large number of operations, fail-safe mode, robustness, and durability. The occupancy sensors have not been tested to this higher standard. Section 101.2 of the WSEC states that the Energy Code requirements will not abridge safety requirements. I have serious reservations about the application of this proposal to a required life safety emergency system when a key component of the system has not been evaluated for this critical use.

The NEC requires that listed electrical products be used in accordance with the conditions of listing and per the manufacturer's instructions. The manufacturers of occupancy sensors do not encourage nor will they stand behind products used for functions that they are not designed, tested, and listed for.

Joe Andre

Comment on new Section 105.4

"A permanent certificate shall be posted within three feet of the electrical distribution panel."

In any home constructed on a slab or with a crawl space and without a garage, the electrical panel will be located in a finished room; a bedroom, kitchen, living room, etc. In this instance, it is doubtful that any certificate will be posted on a finished and painted wall, much less be posted there permanently. This proposal originally called for the certificate to be posted on the electrical panel. That requirement would likely result in critical electrical information being covered, leading to possible safety violations.

The Council should carefully consider rewording this posting requirement or modifying it to provide options for the location of the certificate.

Joe Andre

I am speaking for myself at this time regarding proposed new section 505.1 that will essentially require compact fluorescent lamps in half of all the permanently installed luminaires in homes.

There is no doubt that CFL's use less energy than our standard incandescent bulbs. However, they are far from the ultimate answer and have a number of drawbacks as well. I will reference a portion of an article published in the May/June issue of IAEI NEWS dealing with CFL lamps:

1. Most cannot be dimmed, and those that can are more expensive
2. They are just now being produced for three-way applications, again, being more expensive
3. Some are instant start, but many are not
4. They are just beginning to be offered in a wider range of Kelvin color selections
5. They could emit more damaging UV light than incandescent
6. Some will not physically fit into certain luminaires
7. CFL's are more voltage sensitive than incandescent. If the voltage drops below rated voltage, they could extinguish.
8. They have a power factor of approximately .5: incandescent lamps have a unity power factor, meaning that comparing the two on a watt for watt basis is not an accurate comparison – we need to be using volt-amps instead, a change made in the electrical code many years ago but still not recognized in the energy code. (Reactive volt-amps are measured as true power; watts are measured as apparent power. All residential electrical meters read only apparent power.)
9. CFL's generate electrical noise and create power quality issues such as triplen harmonics (3^{rd}, 6^{th}, 9^{th}, etc. Each is a multiple of the basic frequency of 60 Hz.)
10. CFL's contain mercury and other rare earth elements and the must be carefully disposed of, currently a significant problem.
11. Clean-up of a broken CFL in the home, according to the EPA, is a significant issue. There are numerous reports of homeowners refusing to clean up a broken CFL and it costing about $2000 to have it done.

CFL's are a great idea and a great voluntary energy saving product. But mandating them makes for bad code and a bad idea.

Comments in support of disapproval of Proposal 09-139, Section 505.1 to the WSEC

From Joe Andre, Washington State resident, representing himself.
jfandre@verizon.net
206-930-9571 (cell phone)

I urge the Council to reject Proposal 09-139, New section 505.1 to the WSEC. I offer the following as substantiation for not mandating the use of compact fluorescent lamps.

The following is excerpted from IAEI NEWS, May-June 2009; used with permission. From the Article " In the Dark about Green Lighting". The selection is the complete discussion from the article on compact fluorescent lamps. The complete article may be viewed online at http://www.iaei.org/magazine/?p=1765.

About the author: Gersil N. Kay, IESNA, Conservation Lighting International Ltd., served four years as an appointed lighting designer on the national ASHRAE/IESNA/ANSI project committee on Standard 90.1. She can be reached at glassfibreltg@mac.com.

"Compact Fluorescents (CFLs)

Contrary to current publicity, incandescent lamps cannot be completely replaced in all uses. In fact, much of the massive advertising for CFLs and LEDs does not appear to give complete data enabling the correct choice. The right selection cannot be done unless *all* of the properties are known about each type.

Recognizing the discrepancies, CFLs are just now being made for three-way applications, dimming ability and with a wider range Kelvin color selections.[2] If not instant start, they may be unsuitable and even unsafe for constant on–off uses. They could emit more damaging ultraviolet light (that fades irreversibly) than incandescent lamps, and they may not fit into existing fixtures. The fact that they require more manufacturing steps makes them much more expensive than incandescents.

The CFL lamps typically have a lower power factor (PF). Tungsten lamps are resistive with a unity (1.0) PF, but CFLs are normally at (0.50) PF lagging or leading, depending on the type of ballast used. This means that the like-for-like comparison normally given for CFLs is wrong, and volt/amperes, rather than watts, are the correct measure. CFLs take more current on a volt/ampere (VA) scale, so with greatly increased use, they may cause issues for power stations that are on a kilowatt (kW) basis. With extensive CFL use, the existing meters will not accurately reflect the more-than-anticipated current taken, which has an active (working) and reactive (non-working) component.

CFLs also generate harmful electrical noise, like harmonics (3rd, 6th, 9^{th}, etc.) that could disrupt electric service under certain circumstances. Disposal of CFLs must be carefully done because they contain phosphors and mercury. CFLs can be voltage sensitive. If the line voltage drops below the stated voltage, the lamps could extinguish."